AMENDMENTS TO THE CLAIMS

In accordance with 37 C.F.R. §1.121(c), please amend the claims as indicated in marked-up form below, where additions are underlined, deletions are struck through, and new claims are presented without markings.

1. (Currently Amended) A method comprising:

depositing a layer of a metal on each of a number of conductors disposed on a surface of a first wafer;

aligning the first wafer with a second wafer, the second wafer having a number of conductors disposed on a surface thereof;

physically contacting the metal layer on each of the conductors of the first wafer with a mating one of the conductors on the second wafer; and

forming a bond between the metal layer on each of the conductors of the first wafer and the mating one conductor of the second wafer, wherein all regions of the first and second wafer surfaces surrounding the mating conductors remain ~~unbonded.~~ unbonded, wherein the bond is formed at a temperature between approximately 100 and 300 degrees Celsius.

2. (Previously Presented) The method of claim 1, further comprising, prior to depositing the metal layer on each of the conductors of the first wafer, removing dielectric material from the surface of the first wafer.

3. (Previously Presented) The method of claim 1, further comprising, prior to depositing the metal layer on each of the conductors of the first wafer, removing native oxide from the conductors.

4. (Previously Presented) The method of claim 1, wherein the conductors of the first wafer comprise Copper.

5. (Previously Presented) The method of claim 1, wherein the metal comprises a metal selected from a group consisting of Silver, Gold, Ruthenium, Osmium, Iridium, Palladium, Rhodium, and Platinum.

6. (Canceled)

7. (Previously Presented) The method of claim 1, wherein depositing the layer of metal on each of the conductors of the first wafer comprises:

forming a blanket layer of the metal over the conductors and the surface of the first wafer; and

removing the metal from at least portions of the first wafer surface.

8. (Previously Presented) The method of claim 1, wherein depositing the layer of metal on each of the conductors of the first wafer comprises selectively depositing the metal on each of the conductors.

9. (Previously Presented) The method of claim 8, wherein selectively depositing the metal on each of the conductors of the first wafer comprises an electroless plating process, an electroplating process, or a contact displacement plating process.

10. (Previously Presented) The method of claim 1, wherein the metal layer on each of the conductors of the first wafer comprises a number of islands.

11. (Previously Presented) The method of claim 10, wherein the islands are selectively deposited on each of the conductors of the first wafer.

12. (Currently Amended) ~~The method of claim 10,~~ A method comprising:

depositing a layer of a metal on each of a number of conductors disposed on a surface of a first wafer;

aligning the first wafer with a second wafer, the second wafer having a number of conductors disposed on a surface thereof;

physically contacting the metal layer on each of the conductors of the first wafer with a mating one of the conductors on the second wafer; and

forming a bond between the metal layer on each of the conductors of the first wafer and the mating one conductor of the second wafer, wherein all regions of the first and second wafer surfaces surrounding the mating conductors remain unbonded,

wherein the metal layer on each of the conductors of the first wafer comprises a number of islands; and

wherein the islands are formed by a process comprising:

depositing a blanket layer of the metal over the conductors and the surface of the first wafer; and

removing the blanket metal layer from at least portions of the first wafer surface and from portions of each conductor to form the number of islands on each conductor.

13. (Currently Amended) A method comprising:

depositing a layer of a first metal on each of a number of conductors disposed on a surface of a first wafer;

depositing a layer of a second metal on each of a number of conductors disposed on a surface of a second wafer;

aligning the first wafer with the second wafer;

physically contacting the metal layer on each of the conductors of the first wafer with the metal layer on a mating one of the conductors of the second wafer; and

forming a bond between the metal layer on each of the conductors of the first wafer and the metal layer on the mating one conductor of the second wafer, wherein all regions of the first and second wafer surfaces surrounding the mating conductors remain ~~unbonded.~~ unbonded, wherein the bond is formed at a temperature between approximately 100 and 300 degrees Celsius.

14. (Previously Presented) The method of claim 13, further comprising, prior to depositing the metal layer on each of the conductors of at least one of the first and second wafers, removing dielectric material from a surface of the at least one wafer.

15. (Previously Presented) The method of claim 13, further comprising, prior to depositing the metal layer on each of the conductors of at least one of the first and second wafers, removing native oxide from the conductors of the at least one wafer.

16. (Original) The method of claim 13, wherein the conductors of each of the first and second wafers comprise the same metal.

17. (Original) The method of claim 16, wherein the conductors of each of the first and second wafers comprise Copper.

18. (Original) The method of claim 13, wherein the first metal and the second metal are the same.

19. (Original) The method of claim 13, wherein the first metal and the second metal are different.

20. (Previously Presented) The method of claim 13, wherein each of the first and second metals comprises a metal selected from a group consisting of Silver, Gold, Ruthenium, Osmium, Iridium, Palladium, Rhodium, and Platinum.

21. (Canceled)

22. (Previously Presented) The method of claim 13, wherein depositing the metal layer on each of the conductors of at least one of the first and second wafers comprises:

forming a blanket metal layer over the conductors and a surface of the wafer; and

removing the blanket metal layer from at least portions of the wafer surface.

23. (Previously Presented) The method of claim 13, wherein depositing the metal layer on each of the conductors of at least one of the first and second wafers comprises selectively depositing the metal layer on the conductors.

24. (Previously Presented) The method of claim 23, wherein selectively depositing the metal layer on each of the conductors comprises an electroless plating process, an electroplating process, or a contact displacement plating process.

25. (Previously Presented) The method of claim 13, wherein the metal layer on each of the conductors of at least one of the first and second wafers comprises a number of islands.

26. (Original) The method of claim 25, wherein the islands are selectively deposited on the conductors.

27. (Currently Amended) ~~The method of claim 25,~~ A method comprising:

depositing a layer of a first metal on each of a number of conductors disposed on a surface of a first wafer;

depositing a layer of a second metal on each of a number of conductors disposed on a surface of a second wafer;

aligning the first wafer with the second wafer;

physically contacting the metal layer on each of the conductors of the first wafer with the metal layer on a mating one of the conductors of the second wafer; and

forming a bond between the metal layer on each of the conductors of the first wafer and the metal layer on the mating one conductor of the second wafer, wherein all regions of the first and second wafer surfaces surrounding the mating conductors remain unbonded,

wherein the metal layer on each of the conductors of at least one of the first and second wafers comprises a number of islands; and

wherein the islands are formed by a process comprising:

depositing a blanket metal layer over each of the conductors and a surface of the wafer; and

removing the blanket metal layer from at least portions of the wafer surface and from portions of each conductor to form the number of islands on each conductor.

28-42. (Canceled)